RealCarbonTech

SUSTAINABLE FUELS

VALUE CHAIN STAKEHOLDER PAINS & GAINS

Stakeholder 1

Hard-to-abate industry (industrial facilities and large industrial groups).

Hard-to-abate industry, including cement, steel and chemical production, accounts for about 20% of global CO2 emissions [https://bit.ly/3MKKpk3]. As for European industry, the cement and steel manufacturing sectors alone account for nearly 40% of emissions (3 Gton CO2 and 2.9 Gton CO2 respectively) [https://mck.co/39Lqsea].

Reducing CO2 emissions from hard-to-abate industry is a very challenging quest, as alternatives to its intensive use of fossil fuels, such as electricity, are prohibitively expensive.

Pain

In addition to environmental damage, CO2 emissions from industrial processes entail high direct and indirect costs for the hard-to-abate industry, which are becoming more and more important (e.g. EU and local carbon taxes, environmental compliance requirements, the rising price of fossil fuels and reputation risks). Manufacturers are therefore under increasing pressure due to the need to decarbonise their operations while avoiding cost escalation. One of their main frustrations is that current decarbonisation solutions based on CCU technologies remain unattractive due to the low or even negative economic profitability demonstrated by pilot projects implemented over the last 20 years. The reason is the lack of breakthrough components that can deliver radical end-to-end process improvements.

Gain

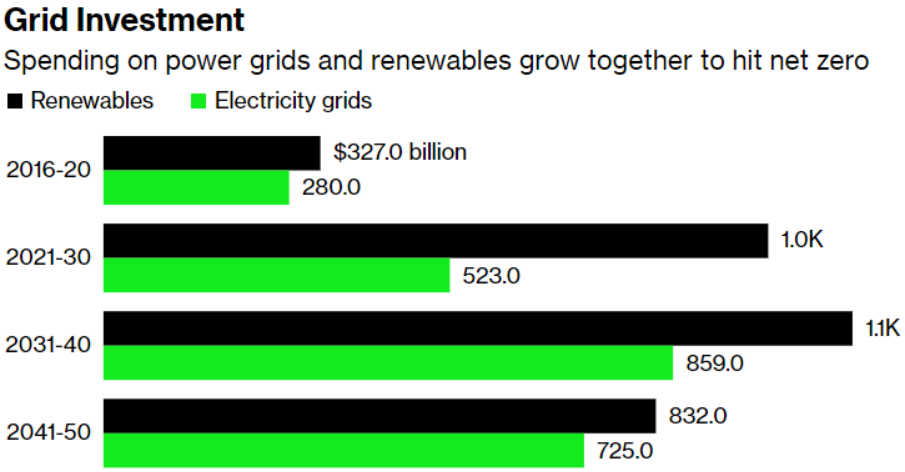
All CO2 emitters are looking for profitable business models that allow them to cover their decarbonisation needs regardless of the size and location of their facilities, the type of emissions they release and the often-limited space available to install the solution.

Stakeholder 2

Power-to-X (PtX) project developers and large energy groups are also looking for cost-efficient solutions allowing them to make the most of the surplus electricity produced by renewable power plants during periods when fluctuating renewable energy generation exceeds the available grid capacity. The obvious trend is the significant lagging of available grid capacities behind the number of renewable energy projects [https://shorturl.at/hpuG1].

Pain

The world's move to renewable electricity will only happen with hundreds of billions of dollars spent on grid infrastructure. Cables are the backbone of the electric grid. In many cases, building a grid that can take on all those renewables can be more expensive than the cost of the solar and wind farms themselves. International Energy Agency says global investment in power grids would need to hit $820 billion per year by 2030, up from about $260 billion in 2020, to get on track to limit global warming to 1.5° Celsius [https://rb.gy/ejbwgk].



Source: International Energy Agency
Note: Figures are average annual investment

These spending plans represent a shift in energy-transition strategy from relying predominantly on renewable sources of power. For the most part, new solar farms and wind parks have just been added to the existing grid, but scaling up these technologies to the level needed to prevent the worst impacts of climate change will require a network built to maximize renewable-energy deployment. And while it's true that, at the point of generation, solar and wind power are already vastly cheaper than fossil fuels, projections about their increasing affordability often fail to include the anticipated cost of grid infrastructure.

Gain

These stakeholders are urgently seeking solutions that will address the challenge and help avoid cost build up.

Stakeholder 3

E-fuels off-takers - include transportation companies (marine, road and air) and energy groups interested in non-battery energy storage or hydrogen carrier solutions.

The transportation segment is responsible for more than 20% of global CO2 emissions [https://bit.ly/3sQSX0G], so the decarbonisation of logistics operations will make a significant impact on the global climate effort.

Pain

E-fuels produced from CO2 by using renewable energy, such as green methanol or renewable DME, are one of the most promising alternatives to the use of fossil fuels to achieve the sector's decarbonisation. However, the high production cost of sustainable e-fuels compared to fossil fuels is currently the main barrier to their wider adoption.

Gain

The transportation industry is very interested in finding suppliers of sustainable fuels that, in addition to covering its growing demand, also can offer selling prices that can guarantee the operations of the entire sector, from large maritime shipping groups to minor road freight companies.

Another of the great demands of this sector is to guarantee the supply of sustainable fuels, which is why they are also looking for solutions able to minimise the risks of supply chain disruptions.

Stakeholder 4

Society.

Pain

World population must face the consequences of global climate change in their everyday lives, from the increase in cases of bad weather to the destruction of ecosystems associated with the emergence of new pandemics, through the social conflicts linked to climate migration and the geopolitical conflicts leading to the increase of prices for the fossil fuels we use in our day-to-day activity.

Gain

Driving down the CO2 emissions from industrial activities will not only allow people to access more sustainable products and services that improve their quality of life, but also avoid deep social conflicts, which ultimately translates into greater well-being.

Stakeholder 5

National governments and European authority (EC)

Pain

As world leaders, European governments must take the lead in the fight against climate change, which implies the creation of policies, regulations and financial support mechanisms allowing to tackle the problem at its root, i.e. the decarbonisation of all CO2-emitting sectors. However, the actual frameworks and penalties are not always efficient enough to stimulate those responsible for CO2 emissions to take relevant actions, who, not finding sufficiently attractive business models allowing them to compensate for the financial investment of their efforts to decarbonisation, choose to continue with their usual polluting models. This not only deepens the impacts of climate change, but also prevents European local and national governments from reaching their CO2 reduction targets set by the European Commission, which translates into fines ranging from €200k to €12M depending on the payment capacity of each country and its GDP.

Gain

One of the biggest challenges facing European governments is meeting their CO2 reduction targets. Therefore, in addition to creating policies and regulations to pressure the sectors responsible for CO2 emissions, they are also promoting through different financial support mechanisms the adoption of ground-breaking technologies allowing them to accelerate the decarbonisation of all the sectors involved, and thus stay on the right path to success.